

What is claimed is:

1. A method of manufacturing a thin film transistor comprising the steps of:

5 forming a semiconductor film on one major surface of a substrate;

forming a first gate insulating film and a second gate insulating film sequentially in this order on said semiconductor film;

10 forming a gate electrode on said second gate insulating film;

removing a part or all of said second gate insulating film except a region covered by said gate electrode; and

15 after removing said second gate insulating film, doping ions in said semiconductor film with said gate electrode acting as a doping mask.

20 2. The method according to claim 1, wherein said first gate insulating film is a silicon oxide film and said second gate insulating film is a silicon nitride film.

3. The method according to claim 1, wherein said second gate insulating film is a supply source for supplying hydrogen to said semiconductor film.

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4. The method according to claim 3, wherein hydrogen contained in said second gate insulating film is introduced into said semiconductor film by a predetermined annealing process.

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5. The method according to claim 3, wherein said semiconductor film is a poly-silicon film.

09527534 10 6. The method according to claim 1, wherein after said gate electrode is formed in a predetermined pattern, said second gate insulating film is removed by etching with said gate electrode acting as a mask.

09527534 15 7. A thin film transistor comprising a semiconductor film, a first gate insulating film, a second gate insulating film and a gate electrode sequentially formed in that order on one major surface of a substrate,

wherein said first gate insulating film covers said semiconductor film, and

20 said second gate insulating film is made of a material for supplying hydrogen to said semiconductor film and is formed only in a region covered by said gate electrode to have substantially the same shape as said gate electrode.

8. The thin film transistor according to claim 7, wherein said first gate insulating film is a silicon oxide film and said second gate insulating film is a silicon nitride film.

5 9. The thin film transistor according to claim 7, wherein said semiconductor film is a poly-silicon film.

10. A thin film transistor comprising a semiconductor film, a first gate insulating film, a second gate insulating film and a gate electrode sequentially formed on one major surface of a substrate in that order,

wherein said first gate insulating film covers said semiconductor film, and

15 said second gate insulating film is made of a material for supplying hydrogen to said semiconductor film and has a smaller film thickness in a region not covered with said gate electrode than that in a region covered with said gate electrode.

20 11. The thin film transistor according to claim 10, wherein said first gate insulating film is a silicon oxide film and said second gate insulating film is a silicon nitride film.

12. The thin film transistor according to claim 10, wherein said semiconductor film is a poly-silicon film.